

of future cash flows and the market value of investment. The accounting rates of return used in the AT&T model are based on accrued income and book value as measured by regulatory accounting principles. Accounting rates of return are affected by regulatory accounting rules that have little to do with the LECs' economic performance. The LECs' regulatory accounting rates of return can neither be compared to the cost of capital nor used as an estimate of their cost of capital.

25. Dr. Norsworthy defends his use of the LECs' accounting rates of return as estimates of the cost of capital in two ways. First, he alleges that the Christensen study assumes that the LECs adjust their capital stock rapidly to the cost minimizing level and that his data contradict this assumption (see pages 32-33 of Dr. Norsworthy's report). Second, Dr. Norsworthy argues that "there is no incentive under [Dr. Christensen's] approach to price cap regulation for the LECs to adjust the quantity of capital to the overall cost-minimizing level".<sup>12</sup> Neither of Dr. Norsworthy's arguments is correct.

26. Dr. Norsworthy uses an incorrect measure of the cost of capital, and then relies on this mistake to support his criticism of Dr. Christensen. Dr. Norsworthy attempts to test the assumption that capital stocks adjust rapidly to their overall cost-minimizing level by studying variations in the gross return to capital and variations in the capital stock from 1985 to 1994. Since the gross return to capital varies more than the

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<sup>12</sup>AT&T *Comments*, p. 38.

capital stock, Norsworthy concludes that Dr. Christensen's assumption of rapid capital stock adjustment is incorrect. Dr. Norsworthy's comparison of the variability in the gross return to the capital stock, however, is based on his own incorrect assumption that the gross return to capital, as measured by regulatory accounting rules, is equal to the LECs' cost of capital. As discussed above, the accounting rate of return on investment is *not* equal to the cost of capital because the accounting rate of return is based on accrual accounting concepts and book values rather than cash flows and market values. The observation that the LECs' accounting rates of return varied more than their capital stock, is evidence only that Dr. Norsworthy failed to measure the cost of capital correctly, not that the LECs failed to adjust their capital stocks to changes in the cost of capital.

27. Dr. Norsworthy's contention that Dr. Christensen's TFP approach provides no incentive for the LECs' to adjust their capital stock to the cost-minimizing level demonstrates his lack of understanding of the price cap plan. If the LECs' can reduce their costs by adjusting their capital stock, their economic profits will rise. So long as the price cap plan allows the LECs to retain profit increases, the LECs have every incentive to adjust their capital stock to the overall cost-minimizing level. In contrast, the AT&T Model—like any rate of return scheme—provides no incentives for the LECs' to adjust their capital stocks to the cost-minimizing level. The profits they could achieve from such adjustments would be passed through to IXCs and the IXC shareholders.

**VI. MCI's depreciation study fails to distinguish between accounting concepts and economic concepts.**

28. In their initial response to the FCC's price cap performance review for local exchange carriers, the LECs' demonstrated that their accounting profits for the price cap period, 1991 — 1993, were distorted by inadequate depreciation reserves.<sup>13</sup> MCI now attempts to refute the LECs' results through a depreciation study prepared by Kenneth C. Baseman and Harold Van Gieson. The Baseman/Van Gieson study presents data on the RBOCs' FCC-prescribed depreciation reserve deficit from 1983 to 1994. Since the FCC-prescribed depreciation reserve deficit declined from \$21 billion in 1983 to \$3.16 billion in 1994, Baseman and Van Gieson argue that the RBOCs' profits are not distorted by inadequate depreciation reserves.<sup>14</sup>

29. Despite their assertion to the contrary, the Baseman/Van Gieson study *does not* support their conclusion that the RBOCs' "current depreciation rates are adequate." Like the Norsworthy productivity study sponsored by AT&T, the Baseman/Van Gieson study fails to distinguish between accounting concepts and economic concepts. The accounting depreciation rates studied by Baseman and Van Gieson are designed to allocate the original or historical cost of the RBOCs' investments over their assumed useful lives. Many of the RBOCs' assets have useful lives ranging from 10 to 20 years. Even assuming for the moment that these useful lives

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<sup>13</sup>*Comments of the United States Telephone Association*, CC Docket No. 94-1, p. 16, filed May 9, 1994.

<sup>14</sup>Baseman and Van Gieson, *op.cit.*, page 4.

are not too long in today's environment of rapid technological changes, in a period of inflation, accounting depreciation is *never* sufficient to measure the cost of replacing long-lived assets. Economists, therefore, measure depreciation based on the replacement cost of assets, not the original or historical cost. Since the replacement cost of the RBOCs' assets exceeds their historical cost, the RBOCs' current depreciation rates are inadequate to cover the cost of replacing their assets.

30. The Baseman/Van Gieson study suffers from several additional flaws that invalidate their conclusions. First, the Baseman/Van Gieson study is based primarily on FCC-approved depreciation rates rather than market-determined depreciation rates. As noted in my previous affidavit in this docket, the RBOCs' depreciation rates are significantly less than the depreciation rates of competitors such as AT&T, whose depreciation rates effectively are unregulated. If the price cap LECs had used the same depreciation rates as AT&T during the price cap period 1991 – 1994, the LECs' average accounting rate of return would have been reported as 8.17%. While still failing to measure the true *economic* returns of the price cap LECs, this accounting return does illustrate the significant effect of inadequate depreciation on the LECs' reported accounting rates of return during the price cap period. Second, Baseman and Van Gieson report a significant increase in the depreciation reserve deficits when they include only those states with depreciation hearings in 1995. Thus, contrary to Baseman and Van Gieson's assertions, according to the most recent data, the depreciation reserve deficit is now dramatically greater than Baseman

and Van Gieson's first estimate. Third, Baseman and Van Gieson did not measure the effect of the RBOCs' depreciation reserve deficits on their reported rates of return.

**VII. Retaining a sharing requirement in today's competitive access environment serves no useful economic function and is counterproductive.**

31. The Respondents recommend that the Commission retain some form of sharing in the price cap plan. Their arguments to retain sharing again ignore the significant differences between accounting and economic rates of return. The Commission's current sharing rules are based on a calculation of a LEC's achieved accounting rate of return during the previous year. As noted in Section IV, the LECs' accounting rates of return exceed their economic rates of return. As long as the sharing rules are based on the LECs' accounting rates of return, the LECs may have to share their earnings with ratepayers even though their economic rate of return is not in excess of the Commission's estimate of their cost of capital. Thus, the sharing rules, based on accounting earnings, deny investors their right to earn a fair and reasonable rate of return for the use of their property invested in the LECs' telecommunications networks.

32. As the Commission has correctly recognized,<sup>15</sup> sharing also blunts the incentives of the LECs to reduce costs, invest in new telecommunications infrastructure, and introduce new products and services.

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<sup>15</sup>*Price Cap Performance Review for Local Exchange Carriers*, 9 FCC Rcd 1687 at §11 (1994).

If the LECs improve their profits through cost reductions or the introduction of new products and services, their rates will potentially be reduced through sharing. The disincentive effect of sharing is especially pronounced as the achieved accounting rate of return approaches the sharing level.

33. As long as the Commission retains the sharing mechanism, the price cap LECs are required to allocate costs between services through complex cost allocation manuals and to allocate costs over time through complicated, non-economic depreciation schedules. The allocations required by the revenue sharing mechanism, however, cannot be justified on economic grounds: they are arbitrary. Thus, the large expense and administrative burden of the cost allocation procedures produce no economic benefits to either ratepayer or shareholder. By removing the sharing mechanism, however, the Commission could eliminate the need to make expensive and economically unjustified cost allocations.

34. A major purpose of price cap regulation is to break the link between a price cap LEC's costs and its rates. Because it perpetuates the link between costs and rates, sharing is contrary to this goal of price cap regulation. The Commission recognized the need to break the link between a price cap LEC's regulatory accounting costs and its rates in its *First Report and Order*:

Our decision to retain this aspect of cost-plus regulation was appropriate for the beginning of the transition from rates based on regulatory accounting costs to rates that approximate the prices that would be produced in a competitive market. . . . As the pricing flexibility afforded by the price cap plan increasingly allows LECs to adjust rates to track economic costs, and to respond to competitive challenges, the link between current

prices and the initial price cap rates should become more tenuous.<sup>16</sup>

Since sharing rules also have the "effect of perpetuating the relationship between accounting costs and rates," they should be abandoned.

35. The provision of access services has become increasingly competitive in recent years as competitive access providers have extended their networks to virtually all major cities in the United States. With the recent signing of the telecommunications legislation by the President, and its requirements for further market openings, access markets will likely become even more competitive in a very short time. In competitive markets, companies can not earn excessive rates of return because, if they do, competitors will enter the market at lower prices. Economists recognize that regulation can never replace competition as the ultimate regulator of company profits. In today's competitive access environment, it is even more clear that sharing serves no useful economic function.

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<sup>16</sup>Price Cap Performance Review for Local Exchange Carriers, *First Report and Order*, CC Docket 94-1, FCC No. 95-132, at §298—299.

**Calculation of the Price Cap LECs'  
Economic Return on Investment  
1991-1994**

	<u>Average 1991-1994</u>
Average Cost of Debt	8.32
Average Debt Ratio	41.01
Economic Return on Equity	9.36
Average Equity Ratio	58.99
 Price Cap LECs' Economic Return on Investment <sup>1</sup>	 8.94

Notes:

- The cost of debt is the average of each month's Moody's Aa-rated Public Utility Bond yield during the period.
- Average debt and equity ratios are calculated from the debt and equity data in the ARMIS 43-02 filings for the price cap LECs.

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<sup>1</sup> The price cap LECs' economic rate on investment is the weighted average of its cost of debt and its economic rate of return on equity; for example, the economic return on investment during the period 1991 – 1994 =  $(.4101 * 8.32) + (.5899 * 9.36) = 8.94\%$ .



**Calculation of the Price Cap LECs'  
Economic Rate of Return on Equity  
1991—1994**

$$V_0 = \frac{C_1}{1+k} + \frac{C_2}{(1+k)^2} + \frac{C_3}{(1+k)^3} + \frac{C_4+V_4}{(1+k)^4}$$

Where (\$ in thousands):

k	=	Economic Rate of Return on Equity
V <sub>0</sub>	=	132,901,227
C <sub>1</sub>	=	9,059,449
C <sub>2</sub>	=	9,477,073
C <sub>3</sub>	=	9,764,158
C <sub>4</sub>	=	10,208,090
V <sub>1</sub>	=	146,039,036

Economic Rate of Return on Equity = 9.36%

**Notes:**

- The current value of the embedded plant is calculated using Bureau of Economic Analysis investment price indexes. The source for this data is Attachment B, "Total Factor Productivity Review Plan," Schedule CAP1, Page 1 of 3, line 530. This attachment was filed with the *Comments of the United States Telephone Association on Fourth Further Notice of Proposed Rulemaking*.
- The value of V<sub>0</sub> was calculated by multiplying the current value of the price cap LECs' plant at the end of 1990 by the equity percent at the end of 1990.
- The value of V<sub>4</sub> was calculated by multiplying the current value of the price cap LECs' plant at the end of 1994 by the equity percent at the end of 1994.
- The values of C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, and C<sub>4</sub> are the dividends paid by the price cap LECs in 1991, 1992, 1993, and 1994, respectively.

**QUALIFICATIONS OF  
DR. JAMES H. VANDER WEIDE**

James H. Vander Weide is Research Professor of Finance and Economics at the Fuqua School of Business, Duke University. Dr. Vander Weide is also founder and President of Financial Strategy Associates, a consulting firm that provides strategic, financial, and economic consulting services, including cost of capital studies. He has testified on the cost of capital, risk, incentive regulation, pricing, depreciation, accounting, and other financial and economic issues before the U.S. Congress, the Federal Communications Commission, the National Telecommunications and Information Administration, the Federal Energy Regulatory Commission, the public service commissions of 30 states, and the insurance commissions of five states. He has also engaged in special research projects and designed financial software packages for firms in the banking, electric, gas, insurance, telephone, and water industries.

**Educational Background and Prior Academic Experience**

Dr. Vander Weide holds a Ph.D. in finance from Northwestern University and a B.A. from Cornell University. In January 1972, he joined the faculty of the School of Business at Duke University and was subsequently named Assistant Professor, Associate Professor, and then Professor. In 1982, he assumed the position of Associate Dean of Faculty Affairs at the Fuqua School. He resigned this position in July 1983 and is now Research Professor of Finance and Economics.

Since joining the faculty at Duke University, Dr. Vander Weide has taught courses in corporate finance, investment management, and management of financial institutions. He has also taught courses in statistics, economics, and operations research, and a Ph.D. seminar on the theory of public utility pricing.

In addition to his teaching in the full-time educational programs of the Fuqua School of Business, he has been active in executive education at Duke. Dr. Vander Weide helped design the Duke Advanced Management Program at the Fuqua School of Business and served as Program Director for this program for five years. Dr. Vander Weide now serves as Program Director and/or teacher in many executive programs designed to prepare managers for the competitive environment in American industry. In 1989, Dr. Vander Weide designed and initiated a three-week executive program for Soviet manager development, the first executive program in the United States designed exclusively for Soviet managers. The program continues for managers from the former Soviet republics since the breakup of the Soviet Union. He continues to deliver a nationally prominent program on the Cost of Capital for firms in regulated industries.

### **Publications**

Dr. Vander Weide has written a book entitled *Managing Corporate Liquidity: An Introduction to Working Capital Management* for John Wiley and Sons, Inc., which was published in August, 1984. He has also written a chapter on "Financial Management in the Short Run" for *The Handbook of Modern Finance*, and written research papers on such topics as portfolio management, capital budgeting, investments, the effect of regulation on the performance of public utilities, and cash management. His articles have been published in *American Economic Review*, *Financial Management*, *Journal of Finance*, *Journal of Financial and Quantitative Analysis*, *Journal of Bank Research*, *Journal of Portfolio Management*, *Journal of Accounting Research*, *Journal of Cash Management*, *Management Science*, *Atlantic Economic Journal*, *Journal of Economics and Business*, and *Computers and Operations Research*.

### **Professional Consulting Experience**

Dr. Vander Weide has provided financial and economic consulting services to firms in the electric, gas, insurance, telecommunications, and water industries for over 20 years. He also testified on the cost of capital, risk, incentive regulation, pricing, depreciation, accounting, and other financial and economic issues before the U.S. Congress, the Federal Communications Commission, the Federal Energy Regulatory Commission, the National Telecommunications and Information Administration, the public service commissions of thirty states, and the insurance commissions of five states. He worked for Bell Canada on a special task force to study the effects of vertical integration in the Canadian telephone industry.

### **Other Professional Experience**

Dr. Vander Weide, in conjunction with his firm, has hosted a nationally prominent conference/workshop on determining the cost of capital where legal and financial executives from utilities and regulatory bodies have studied the strengths and weaknesses of the various approaches to estimating a company's cost of capital. In addition, he has conducted seminars and training sessions for executives in both regulated and unregulated industries on financial analysis, competitive strategy, financial strategy, capital budgeting, cost of capital, cash management, depreciation policies, and short-run financial planning.

In the 1970's, Dr. Vander Weide helped found University Analytics, Inc., one of the fastest growing small firms in the country. As an officer at University Analytics, he designed cash management models, databases, and software packages that are used by most major U. S. banks in consulting with their corporate clients. Having sold his interest in University Analytics, Dr. Vander Weide now concentrates on strategic and financial consulting, academic research, and executive education.

**AFFIDAVIT OF JAMES H. VANDER WEIDE**

I, JAMES H. VANDER WEIDE, being duly sworn, depose and say that the foregoing rebuttal testimony is true and correct to the best of my knowledge and belief.

James H. Vander Weide

Subscribed and sworn to  
before me this 29<sup>th</sup> day  
of February, 1996.

Carol Allen  
Notary Public

My Commission Expires February 28, 1999

# **ATTACHMENT 10**

## **Total Factor Productivity Review Plan**

**USTA Reply Comments  
CC Docket No. 96-262  
February 14, 1997**

1995 Total Factor Productivity Review Plan  
 Demand Inputs

Item	Source	1988	1989	1990	1991	1992	1993	1994	1995
ACCESS LINES (4308) :									
100 Total Switched Access Lines	4308, Table II, r.910, c.cj	116,367,890	120,968,239	123,850,902	128,073,888	130,575,917	134,674,007	138,532,479	144,059,613
MINUTES OF USE (4301) :									
Common Line:									
110 Originating Premium	4301, Table II, r.2010	99,325,328,600	111,757,545,000	125,155,347,000	131,138,509,000	140,064,893,830	148,066,549,743	156,681,449,000	160,907,176,000
120 Terminating Premium	4301, Table II, r.2020	120,665,947,333	140,105,222,000	154,611,484,000	166,603,685,000	179,958,114,400	195,057,856,096	212,437,359,000	237,689,558,000
130 Originating NonPremium	4301, Table II, r.2030	1,945,303,667	1,562,340,000	1,175,215,000	763,839,000	442,129,000	268,011,000	169,649,000	152,314,000
140 Terminating NonPremium	4301, Table II, r.2040	6,298,918,467	4,978,912,000	3,211,781,000	2,228,644,000	1,535,714,000	997,995,000	761,136,000	536,114,000
150 Sw Traffic Sensitive (Prem&NonPrem)	4301, Table II, (r.2050+r.2060)	248,179,024,000	275,176,417,000	294,359,067,000	308,939,142,000	328,659,997,000	346,621,156,250	376,393,931,000	405,543,164,000

1995 Total Factor Productivity Review Plan  
 Expense and Labor Inputs

Item	Source	1988	1989	1990	1991	1992	1993	1994	1995
EXPENSE DATA (4302) :									
100 Total Operating Expenses	4302, Table I-1-4, r.720, c.ab	57,111,554,000	59,473,475,000	60,558,389,000	62,141,854,000	62,025,453,000	64,847,301,000	68,311,956,000	69,805,408,000
110 Depreciation & Amortization	4302, Table I-1-3, r.6560, c.ab	16,581,948,000	16,833,893,000	16,990,192,000	16,581,181,000	16,987,080,000	17,509,939,000	18,418,540,000	19,150,522,000
120 Wages & Salaries	4302, Table I-1-4, r.720, c.ac	18,214,136,000	18,215,072,000	18,462,119,000	18,325,683,000	18,303,688,000	18,497,395,000	18,249,299,000	18,307,310,000
130 Fringe Benefits	4302, Table I-1-4, r.720, c.ad	4,297,157,000	4,387,998,000	4,468,608,000	5,228,091,000	5,468,267,000	6,839,533,000	7,378,506,000	6,544,717,000
OPERATING TAXES (4302) :									
200 ITC-Net	4302, Table I-1-5, r.7210, c.bb	901,851,326	837,210,000	753,845,000	692,001,000	628,967,000	575,949,000	505,138,000	396,647,000
210 FIT	4302, Table I-1-5, r.7220, c.bb	4,645,625,000	4,006,070,000	4,522,431,000	4,917,550,000	5,137,906,000	5,783,218,000	5,823,528,000	5,668,745,000
220 State and Local	4302, Table I-1-5, r.7230, c.bb	785,380,000	651,584,000	700,868,000	795,543,000	723,444,000	824,087,000	909,859,000	781,156,000
230 Property	4302, Table I-4, r.940, c.c	2,367,591,280	2,503,465,183	2,581,675,183	2,572,201,207	2,491,384,000	2,506,729,000	2,504,554,000	2,446,779,000
240 Gross Receipts	4302, Table I-4, r.940, c.d	1,427,152,594	1,303,982,445	1,265,089,843	1,392,927,386	1,406,799,000	1,445,125,000	1,449,586,000	1,458,826,000
250 Capital Stock	4302, Table I-4, r.940, c.e	103,165,366	126,173,280	134,439,705	148,856,692	162,651,000	166,125,000	155,336,000	144,087,000
260 Other	4302, Table I-4, r.940, c.g	135,297,634	140,633,576	153,176,359	155,671,325	150,667,000	197,351,000	194,513,000	223,129,000
LABOR DATA (4302) :									
300 End of Year Employee Counts	4302, Table I-1-6, r.830, c.bb	597,389	592,155	560,941	537,336	511,370	492,446	456,729	429,440

1995 Total Factor Productivity Review Plan  
 Gross Additions Inputs

Item	Source	1988	1989	1990	1991	1992	1993	1994	1995
(a) General Support Facilities									
100 2112 Motor Vehicles	4302, Table B-1-2, r.2112, c.ac	280,587,000	306,302,000	295,390,000	286,241,000	224,867,000	212,146,000	199,643,000	214,970,000
110 2115 Garage Work Equip	4302, Table B-1-2, r.2115, c.ac	11,389,000	10,917,000	14,670,000	13,481,000	12,283,000	10,463,000	6,596,000	5,345,000
120 2116 Other Work Equip	4302, Table B-1-2, r.2116, c.ac	182,715,000	169,152,000	187,264,000	185,597,000	200,325,000	178,791,000	182,260,000	169,077,000
130 2121 Buildings	4302, Table B-1-2, r.2121, c.ac	708,296,000	747,142,000	887,276,000	858,622,000	978,858,000	823,969,000	815,765,000	1,036,320,000
140 2122 Furniture	4302, Table B-1-2, r.2122, c.ac	141,533,000	57,819,000	56,877,000	51,515,000	22,015,000	27,440,000	27,814,000	29,358,000
150 2123 Office Equipment	4302, Table B-1-2, r.2123, c.ac	442,933,000	318,569,000	374,544,000	252,536,000	244,961,999	220,464,000	228,909,000	207,388,000
160 2124 Genl Purpose Computers	4302, Table B-1-2, r.2124, c.ac	1,110,021,000	1,264,161,000	1,228,031,000	1,268,957,000	1,403,136,000	1,357,526,000	1,490,211,000	1,629,530,000
170 (b) Central Office	4302, Table B-1-2, r.2210, c.ac	4,973,681,000	4,341,004,000	4,572,734,000	4,323,207,000	4,643,269,000	4,504,608,000	4,559,264,000	3,965,188,000
180 (c) Operator Systems	4302, Table B-1-2, r.2220, c.ac	151,107,000	94,684,000	173,401,000	169,759,000	122,725,000	144,651,000	91,514,000	96,850,845
190 (d) Transmission	4302, Table B-1-2, r.2230, c.ac	3,797,270,000	3,407,508,000	3,601,038,000	3,866,435,000	4,011,502,000	4,363,443,000	4,651,247,000	5,114,502,000
200 (e) Information Orig/Term	4302, Table B-1-2, r.2310, c.ac	420,216,000	433,639,000	449,091,000	444,753,000	478,359,000	523,248,000	392,887,000	596,052,000
210 (f) Cable and Wire	4302, Table B-1-2, r.2410, c.ac	5,244,616,000	5,293,100,000	6,194,042,000	6,029,114,000	5,970,277,000	5,903,305,000	5,513,409,000	5,626,041,000



1995 Total Factor Productivity Review Plan  
 Revenue Inputs

Item	Source	1988	1989	1990	1991	1992	1993	1994	1995
BOOKED REVENUES (4302) :									
100 Basic Local Service	4302, Table I-1-1, r.520, c.b	33,815,096,000	34,663,999,000	35,810,228,000	37,420,078,000	39,003,982,000	40,697,565,000	42,081,853,000	44,713,873,000
110 LD Network Service	4302, Table I-1-1, r.525, c.b	13,447,717,000	13,620,071,000	13,550,232,000	12,985,462,000	12,532,277,000	12,627,066,000	12,309,693,000	10,368,660,000
120 Network Access	4302, Table I-1-1, r.5080, c.b	25,184,736,000	25,271,602,000	25,138,391,000	25,315,371,000	25,826,373,000	26,613,054,000	27,696,034,000	28,550,987,000
130 End User	4302, Table I-1-1, r.5081, c.b	4,260,916,000	5,234,789,000	5,568,965,000	5,759,898,000	5,919,313,000	6,263,956,000	6,641,589,000	6,871,102,000
140 Switched Access	4302, Table I-1-1, r.5082, c.b	12,090,404,000	11,415,189,000	10,843,689,000	10,772,567,000	10,946,149,000	11,200,613,000	11,636,002,000	11,739,453,000
150 Special Access	4302, Table I-1-1, r.5083, c.b	2,829,746,000	2,537,732,000	2,507,064,000	2,417,913,000	2,468,341,000	2,408,596,000	2,532,469,000	2,883,867,000
160 State Access	4302, Table I-1-1, r.5084, c.b	6,003,665,000	6,083,891,000	6,218,675,000	6,364,990,000	6,492,571,000	6,739,888,000	6,885,974,000	7,056,563,000
170 Miscellaneous	4302, Table I-1-1, r.5200, c.b	7,961,596,000	8,449,620,000	8,591,238,000	8,975,543,000	8,494,943,000	8,934,023,000	9,198,820,000	9,812,138,000
BOOKED REVENUES (4301)									
200 Common Line	4301, Table I, r.1020, c.m	8,834,763,533	8,718,170,000	8,579,912,000	8,446,488,000	8,492,271,000	9,238,686,000	10,069,332,000	10,313,022,057
210 Switched Traffic Sensitive	4301, Table I, r.1020, c.r	7,505,365,200	7,947,394,000	7,678,383,000	7,762,722,000	8,084,789,000	8,061,347,000	8,032,144,000	8,258,116,993

1995 Total Factor Productivity Review Plan  
 Other Inputs

Item	Source	1/1/1988
<u>STARTING TOTAL PLANT IN SERVICE</u>		
100 Motor Vehicles (acct. 2112)	ARMIS 4302, Table B-1-2, col. (a)	2,193,729,000
110 Garage Work Eqpt. (2115)	ARMIS 4302, Table B-1-2, col. (a)	87,017,000
120 Other Work Eqpt. (2116)	ARMIS 4302, Table B-1-2, col. (a)	1,263,257,000
130 Buildings (2121)	ARMIS 4302, Table B-1-2, col. (a)	15,494,010,000
140 Furniture (2122)	ARMIS 4302, Table B-1-2, col. (a)	1,201,015,000
150 Office Eqpt. (2123)	ARMIS 4302, Table B-1-2, col. (a)	2,862,699,000
160 Genl Purpose Computers (2124)	ARMIS 4302, Table B-1-2, col. (a)	5,757,010,000
170 Central Office Switches (2210)	ARMIS 4302, Table B-1-2, col. (a)	42,016,583,000
180 Operator Systems (2220)	ARMIS 4302, Table B-1-2, col. (a)	683,598,000
190 Transmission Eqpt. (2230)	ARMIS 4302, Table B-1-2, col. (a)	31,880,822,000
200 IOT Eqpt. (2310)	ARMIS 4302, Table B-1-2, col. (a)	18,532,626,000
210 Cable & Wire (2410)	ARMIS 4302, Table B-1-2, col. (a)	82,204,618,000
220 END OF YEAR EMPLOYEES	Form M Totals	610,881

<u>RATE CHANGE DATA</u>		1988	1989	1990	1991	1992	1993	1994	1995
<u>Local</u>									
300 Credit	Form M Totals	(58,714,000)	(103,148,360)	(97,449,700)	(56,996,874)	(64,425,378)	(49,054,610)	(100,000)	15,781,000
310 Annualized Revenue Change	Form M Totals	(632,511,294)	(860,781,645)	(850,649,631)	238,676,538	(150,198,750)	108,707,752	(538,895,835)	124,231,000
320 Effective Rate Change	Form M Totals	(340,068,376)	(766,149,283)	(819,971,392)	253,819,268	(65,683,095)	64,178,876	(402,174,778)	105,181,315
<u>Intrastate</u>									
330 Credit	Form M Totals	0	0	(14,860,000)	(1,950,000)	(3,053,622)	(1,430,000)	(4,200,000)	0
340 Annualized Revenue Change	Form M Totals	(149,695,234)	(40,774,370)	(294,335,445)	(56,244,640)	(137,050,818)	(294,444,655)	(310,358,704)	(211,244,000)
350 Effective Rate Change	Form M Totals	(128,635,581)	(215,358)	(66,924,763)	(26,816,105)	(70,924,079)	(117,672,024)	(136,741,899)	(141,256,636)
<u>Toll</u>									
360 Credit	Form M Totals	(587,472)	0	19,797,000	0	0	(1,500,000)	1,000,000	(3,073,000)
370 Annualized Revenue Change	Form M Totals	(143,394,579)	(174,659,929)	(523,904,945)	(61,416,848)	(210,937,296)	(171,239,732)	(32,881,069)	(644,755,000)
380 Effective Rate Change	Form M Totals	(78,815,767)	(109,747,233)	(158,827,078)	(35,349,394)	(146,935,103)	(82,577,798)	(58,885,258)	(570,285,203)

1995 Total Factor Productivity Review Plan  
Miscellaneous Inputs

Item	Source	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
<b>BEA PRICE INDEXES</b>		(see note 6 below)										
<b>Motor Vehicles</b>		SCB Table 7.8 Line 18										
102	Current View of Curr. Year	N/A	98.40	100.00	103.40	107.00	108.20	111.70	116.70	121.90	125.80	111.872
104	Current View of Prior Year	N/A	93.80	98.40	100.00	103.40	107.00	108.20	111.70	116.70	121.90	108.738
106	% Change: Motor Veh. Index	@ln(l.102/l.104)	4.79%	1.61%	3.34%	3.42%	1.12%	3.18%	4.38%	4.36%	3.15%	2.84%
<b>Garage &amp; Other Work Eqpt</b>		SCB Table 7.8 Line 2										
112	Current View of Curr. Year	N/A	99.00	100.00	101.90	103.90	106.20	108.30	109.70	110.70	112.50	100.827
114	Current View of Prior Year	N/A	97.50	99.00	100.00	101.90	103.90	106.20	108.30	109.70	110.70	100.605
116	% Change: Gar&OthWorkEqpt	@ln(l.112/l.114)	1.53%	1.01%	1.88%	1.94%	2.19%	1.96%	1.28%	0.91%	1.61%	0.22%
<b>Furniture and Office Equipment</b>		SCB Table 7.8 Line 24										
122	Current View of Curr. Year	N/A	97.00	100.00	105.60	109.40	113.30	115.40	116.20	118.20	123.00	107.592
124	Current View of Prior Year	N/A	93.70	97.00	100.00	105.60	109.40	113.30	115.40	116.20	118.20	104.626
126	% Change: Furn&OfcEqpt	@ln(l.122/l.124)	3.46%	3.05%	5.45%	3.54%	3.50%	1.84%	0.69%	1.71%	3.98%	2.80%
<b>Gen Purpose Computers</b>		SCB Table 7.8 Line 4										
132	Current View of Curr. Year	N/A	113.70	100.00	95.30	90.00	82.40	73.70	66.40	59.30	55.20	73.525
134	Current View of Prior Year	N/A	131.90	113.70	100.00	95.30	90.00	82.40	73.70	66.40	59.30	81.649
136	% Change: GenPurp Computers	@ln(l.132/l.134)	-14.85%	-12.84%	-4.81%	-5.72%	-8.82%	-11.16%	-10.43%	-11.31%	-7.16%	-10.48%
<b>Communications Equipment</b>		SCB Table 7.8 Line 7										
142	Current View of Curr. Year	N/A	97.50	100.00	99.60	100.90	102.10	103.70	105.10	106.80	108.00	104.243
144	Current View of Prior Year	N/A	95.50	97.50	100.00	99.60	100.90	102.10	103.70	105.10	106.80	102.961
146	% Change: CommEqpt	@ln(l.142/l.144)	2.07%	2.53%	-0.40%	1.30%	1.18%	1.55%	1.34%	1.60%	1.12%	1.24%
<b>Telecommunications Structures</b>		SCB Table 7.7 Line 11										
152	Current View of Curr. Year	N/A	100.00	100.00	101.00	110.00	113.00	114.00	114.00	115.00	118.60	103.429
154	Current View of Prior Year	N/A	101.00	100.00	100.00	101.00	110.00	113.00	114.00	114.00	115.00	102.632
156	% Change: Telecom Structures	@ln(l.152/l.154)	-1.00%	0.00%	1.00%	8.54%	2.69%	0.88%	0.00%	0.87%	3.08%	0.77%
<b>OTHER INDEXES AND DATA BY YEAR (see note 6)</b>												
<b>GDPPi</b>		BEA, Natl Inc&Prod Accts										
201	Current View of Curr. Year	N/A	N/A	100.03	103.95	108.63	113.55	118.13	121.88	125.50	128.93	107.575
202	Current View of Year (t-1)	N/A	N/A	N/A	100.03	103.95	108.63	113.55	118.13	121.88	125.50	104.925
203	Current View of Year (t-2)	N/A	N/A	N/A	N/A	100.03	103.95	108.63	113.55	118.13	121.88	102.600
204	Current View of Year (t-3)	N/A	N/A	N/A	N/A	N/A	100.03	103.95	108.63	113.55	118.13	100.000
205	Current View of Year (t-4)	N/A	N/A	N/A	N/A	N/A	N/A	100.03	103.95	108.63	113.55	97.325
206	Current View of Year (t-5)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.03	103.95	108.63	93.625
207	% Change: GDPPi [(t) over (t-1)]	@ln(l.201/l.202)	N/A	N/A	N/A	4.40%	4.43%	3.95%	3.13%	2.93%	2.69%	2.49%
210	Special Access Growth Rate	Industry analysis (see note 1 below)	N/A	N/A	N/A	-7.94%	-1.06%	2.57%	N/A	N/A	N/A	N/A
220	Special Access API as of 1/1	LEC TRPs, weighted by revenue	N/A	N/A	N/A	N/A	N/A	98.3753	98.9917	97.1108	88.0858	85.6576
230	as of 4/1	LEC TRPs, weighted by revenue	N/A	N/A	N/A	N/A	N/A	98.1593	98.8726	96.8618	87.9792	85.8509
240	as of 7/1	LEC TRPs, weighted by revenue	N/A	N/A	N/A	N/A	N/A	98.3881	98.0450	89.4779	85.7953	81.1646
250	as of 10/1	LEC TRPs, weighted by revenue	N/A	N/A	N/A	N/A	N/A	98.3837	97.4509	88.2985	85.7071	81.0575
255	as of 1/1(t+1)	LEC TRPs, weighted by revenue	N/A	N/A	N/A	N/A	N/A	98.9917	97.1108	88.0858	85.6576	81.0519
<b>U.S. TFP</b>		U.S. Dept of Labor(see Notes 6 & 7 below)										
261	Current View of Curr. Year	N/A	N/A	N/A	3446.299	3437.270	3429.911	3394.427	3445.228	3466.494	3487.354	102.2
262	Current View of Year (t-1)	N/A	N/A	N/A	N/A	3446.299	3437.270	3429.911	3394.427	3445.228	3466.494	101.8
263	Current View of Year (t-2)	N/A	N/A	N/A	N/A	N/A	3446.299	3437.270	3429.911	3394.427	3445.228	101.0
264	Current View of Year (t-3)	N/A	N/A	N/A	N/A	N/A	N/A	3446.299	3437.270	3429.911	3394.427	100.5
265	Current View of Year (t-4)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3446.299	3437.270	3429.911	99.1
266	Current View of Year (t-5)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3446.299	3437.270	100.1
269	% Change: U.S. TFP [(t) over (t-1)]	@ln(l.261/l.262)	N/A	N/A	N/A	-0.26%	-0.21%	-1.04%	1.49%	0.62%	0.60%	0.39%

1995 Total Factor Productivity Review Plan  
Miscellaneous Inputs

Item	Source	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
<b>GROSS ADDITIONS</b>												
300 Motor Vehicles	used 1988 values as surrogate	280,587,000	280,587,000	280,587,000								
310 Garage & Other Work Eqpt	used 1988 values as surrogate	194,104,000	194,104,000	194,104,000								
320 Furniture & Office Eqpt	used 1988 values as surrogate	584,466,000	584,466,000	584,466,000								
330 General Purpose Computers	used 1988 values as surrogate	1,110,021,000	1,110,021,000	1,110,021,000								
340 Total	Sum of 300 thru 330	2,169,178,000	2,169,178,000	2,169,178,000								
<b>COST OF CAPITAL</b>												
Lines 402 thru 464 shown in Millions of \$ (see note 6)												
SCB Table 1.1 Line 1												
402 Current View of Curr. Year		N/A	4,268.6	4,539.9	4,900.4	5,250.8	5,546.1	5,724.8	6,020.2	6,343.3	6,738.4	7,253.8
404 Current View of Prior Year		N/A	N/A	4,268.6	4,539.9	4,900.4	5,250.8	5,546.1	5,724.8	6,020.2	6,343.3	6,935.7
Labor Compensation												
SCB Table 6.2 Line 2												
412 Current View of Curr. Year		N/A	2,524.0	2,698.8	2,921.5	3,100.4	3,297.8	3,405.0	3,591.3	3,780.6	4,004.8	4,222.7
414 Current View of Prior Year		N/A	N/A	2,524.0	2,698.8	2,921.5	3,100.4	3,297.8	3,405.0	3,591.3	3,780.6	4,009.8
Depreciation												
SCB Table 1.9 Line 5												
422 Current View of Curr. Year		N/A	478.6	502.2	534.0	580.4	602.7	626.5	658.5	669.1	715.3	825.9
424 Current View of Prior Year		N/A	N/A	478.6	502.2	534.0	580.4	602.7	626.5	658.5	669.1	818.8
Indirect Business Taxes												
SCB Table 1.9 Line 9												
432 Current View of Curr. Year		N/A	345.5	365.0	385.3	414.7	444.2	478.3	504.4	525.3	554.0	595.9
434 Current View of Prior Year		N/A	N/A	345.5	365.0	385.3	414.7	444.2	478.3	504.4	525.3	572.5
Corporate FIT Liability												
SCB Table 6.18 Line 2												
442 Current View of Curr. Year		N/A	106.5	127.1	137.0	141.3	138.7	131.1	139.7	173.2	202.5	218.7
444 Current View of Prior Year		N/A	N/A	106.5	127.1	137.0	141.3	138.7	131.1	139.7	173.2	195.3
Current Cost of Net Capital Stock												
SCB&BEA (note 2 below)												
452 Current View of Curr. Year		7,751.80	8,224.3	8,729.1	9,108.3	9,650.3	10,116.5	10,384.8	10,751.2	11,290.9	11,917.2	12,415.4
454 Current View of Prior Year		N/A	7,751.80	8,224.3	8,729.1	9,108.3	9,650.3	10,116.5	10,384.8	10,751.2	11,290.9	11,917.2
Constant Cost of Net Capital Stock												
SCB&BEA (note 3 below)												
462 Current View of Curr. Year		8,112.40	8,346.0	8,557.9	8,773.8	8,980.3	9,157.8	9,261.5	9,373.8	9,562.6	9,825.1	9,999.3
464 Current View of Prior Year		N/A	8,112.40	8,346.0	8,557.9	8,773.8	8,980.3	9,157.8	9,261.5	9,373.8	9,562.6	9,825.0
470 U.S. Capital Stock Price Index	(I 452/I 462)	0.9555	0.9854	1.0200	1.0381	1.0746	1.1047	1.1213	1.1469	1.1807	1.2129	1.2416
480 %Chg in U.S. Cap Stk Price Index	((I 470(t)-I 470(t-1))/I 470(t-1))	N/A	3.13%	3.51%	1.78%	3.51%	2.80%	1.50%	2.29%	2.95%	2.73%	2.37%
490 Cost of Capital	((I 402-(I 412+I 422+I 432+I 442)+ (I 454*I 480))/I 454)		13.63%	13.81%	12.35%	14.65%	13.81%	12.22%	13.13%	14.06%	13.90%	14.03%

1995 Total Factor Productivity Review Plan  
Miscellaneous Inputs

Item	Source	
<u>ECONOMIC STOCK BOOK VALUE ADJUSTMENT FACTORS</u>		
500 Gen Support Equipment	USTA comments (see note 4 below)	0.585915
510 Communication Equipment	USTA comments (see note 4 below)	0.667352
520 Structures	USTA comments (see note 4 below)	1.210756
<u>DEPRECIATION RATES</u>		
600 NonCommunications(Other) Eqpt	USTA comments (see note 4 below)	0.1546
610 Communications Equipment	Dale M. Jorgenson [see note 5 below]	0.1100
620 Structures	Dale M. Jorgenson [see note 5 below]	0.0225
<u>OTHER MISCELLANEOUS INPUTS</u>		
700 GSE Declining Balance Rate	Internal Revenue Code, MACRS	2.0
710 GSE Asset Life	Internal Revenue Code, MACRS	7.0
720 CommEqpt DecliningBalanceRate	Internal Revenue Code, MACRS	2.0
730 Communications Eqpt. Asset Life	Internal Revenue Code, MACRS	7.0
740 Cable & Wire Asset Life	Internal Revenue Code, MACRS	31.5
<u>STARTING INDEXES</u>		<u>as of 12/31/87</u>
800 Local Price Index	Initialized to 1.0000 on 12/31/87	1.0000
810 Intrastate Access Price Index	Initialized to 1.0000 on 12/31/87	1.0000
820 Toll Price Index	Initialized to 1.0000 on 12/31/87	1.0000
830 End User Price Index	Initialized to 1.0000 on 12/31/87	1.0000
840 Switched Access Price Index	Initialized to 1.0000 on 12/31/87	1.0000
850 Special Access Price Index	Initialized to 1.0000 on 12/31/87	1.0000
860 Miscellaneous Price Index	Initialized to 1.0000 on 12/31/87	1.0000

Note1 Special Access growth rate is based on a study of LEC special access revenues and quantities commissioned by USTA

Note2 Survey of Current Business (SCB), August 1994, p. 55, Table 2, line 1, and BEA Wealth Diskettes released April 16, 1995 (described in January 1995 SCB)

Note3 SCB, August 1994, p. 56, Table 4, line 1, and BEA Wealth Diskettes released April 16, 1995 (described in January 1995 SCB)

Note4 Comments of the United States Telephone Association, FCC Dkt 94-1, May 9, 1994, Attachment 6 - Productivity of the Local Telephone Operating Companies.  
Laurits R. Christensen, Philip E. Schoech and Mark E. Meitzen, pp. 5-9

Note5 Dale M. Jorgenson "Productivity and Economic Growth" (Chapter 3) in 'Fifty Years of Economic Measurement', ed. E.R. Brendt and J.E. Tripiett, University of Chicago Press, 1990, Table 3-6, p. 45

Note6 BLS often restates indices from one year to another. In order to not achieve different results for historical runs each time this occurs, this model now includes (for each year) the BLS indices available at the time the study was run. When new indices are used, they will be input for the current year without restating historical indices. Values thru 1994 reflect indices available in 4Q95.

Note7 U.S. Department of Labor, Bureau of Labor Statistics, "Multifactor Productivity-Private Business Sector", dated January or February of the year subsequent to the data year. Note that the U.S. TFP "Current View of Current Year" value in each column starting with 1994 is an estimate. The new BLS number for that value is not published until late in December of the following year. To simplify data-gathering effort starting with data in the 1995 column, the Index values (rather than the underlying MFP levels) are used.

1995 Total Factor Productivity Review Plan  
Asset Price Development

Item	Source	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
<b>BEA PRICE INDEXES</b>												
100 Motor Vehicles	MISC1.I.100											
110 Garage & Other Work Eqpt	MISC1.I.110											
120 Furniture & Office Eqpt	MISC1.I.120											
130 General Purpose Computers	MISC1.I.130											
<b>% CHANGE IN BEA PRICE INDEXES</b>												
140 Motor Vehicles	MISC1.I.106	N/A	4.79%	1.61%	3.34%	3.42%	1.12%	3.18%	4.38%	4.36%	3.15%	2.84%
150 Garage & Other Work Eqpt	MISC1.I.116	N/A	1.53%	1.01%	1.88%	1.94%	2.19%	1.96%	1.28%	0.91%	1.61%	0.22%
160 Furniture & Office Eqpt	MISC1.I.126	N/A	3.46%	3.05%	5.45%	3.54%	3.50%	1.84%	0.69%	1.71%	3.98%	2.80%
170 General Purpose Computers	MISC1.I.136	N/A	-14.85%	-12.84%	-4.81%	-5.72%	-8.82%	-11.16%	-10.43%	-11.31%	-7.16%	-10.48%
<b>GROSS ADDITIONS</b>												
200 Motor Vehicles	INV1.I.100; 85-87 MISC1.I.300	280,587,000	280,587,000	280,587,000	280,587,000	306,302,000	295,390,000	286,241,000	224,867,000	212,146,000	199,643,000	214,970,000
210 Garage & Other Work Eqpt	INV1.I.110+I.120; 85-87 MISC1.I.310	194,104,000	194,104,000	194,104,000	194,104,000	180,069,000	201,934,000	199,078,000	212,608,000	189,254,000	188,856,000	174,422,000
220 Furniture & Office Eqpt	INV1.I.140+I.150; 85-87 MISC1.I.320	584,466,000	584,466,000	584,466,000	584,466,000	376,388,000	431,421,000	304,051,000	266,976,999	247,904,000	256,723,000	236,746,000
230 General Purpose Computers	INV1.I.160; 85-87 MISC1.I.330	1,110,021,000	1,110,021,000	1,110,021,000	1,110,021,000	1,264,161,000	1,228,031,000	1,268,957,000	1,403,136,000	1,357,526,000	1,490,211,000	1,629,530,000
240 Total	Sum of 200 thru 230	2,169,178,000	2,169,178,000	2,169,178,000	2,169,178,000	2,126,920,000	2,156,776,000	2,058,327,000	2,107,587,999	2,006,830,000	2,135,433,000	2,255,668,000
<b>GROSS ADDITIONS AVERAGE OF SHARES</b>												
250 Motor Vehicles	(I.200(t-1)/I.240(t-1)+I.200(t)/I.240(t))/2	N/A	12.94%	12.94%	12.94%	13.67%	14.05%	13.80%	12.29%	10.62%	9.96%	9.44%
260 Garage & Other Work Eqpt	(I.210(t-1)/I.240(t-1)+I.210(t)/I.240(t))/2	N/A	8.95%	8.95%	8.95%	8.71%	8.91%	9.52%	9.88%	9.76%	9.14%	8.29%
270 Furniture & Office Eqpt	(I.220(t-1)/I.240(t-1)+I.220(t)/I.240(t))/2	N/A	26.94%	26.94%	26.94%	22.32%	18.85%	17.39%	13.72%	12.51%	12.19%	11.26%
280 General Purpose Computers	(I.230(t-1)/I.240(t-1)+I.230(t)/I.240(t))/2	N/A	51.17%	51.17%	51.17%	55.30%	58.19%	59.29%	64.11%	67.11%	68.72%	71.01%
300 % Change GSE Price Index	140*250+150*260+160*270+170*280	N/A	-5.91%	-5.45%	-0.39%	-1.74%	-4.12%	-5.67%	-5.93%	-6.82%	-3.98%	-6.84%
310 General Support Index	I.310(t-1)*@exp(I.300(t))	1.1247	1.0602	1.0040	1.0000	0.9828	0.9431	0.8911	0.8398	0.7844	0.7538	0.7040
<b>Communications Equipment</b>												
330 % Change Comm. Eqpt. Index	MISC1.I.146	N/A	2.07%	2.53%	0.40%	1.30%	1.18%	1.55%	1.34%	1.60%	1.12%	1.24%
340 Communication Equipment Index	I.340(t-1)*@exp(I.330(t))	0.9588	0.9789	1.0040	1.0000	1.0131	1.0251	1.0412	1.0552	1.0723	1.0843	1.0978
<b>Telecommunications Structures</b>												
360 % Chg. Telecom Structures Index	MISC1.I.156	N/A	1.00%	0.00%	1.00%	8.54%	2.69%	0.88%	0.00%	0.87%	3.08%	0.77%
370 Telecom Structures Index	I.370(t-1)*@exp(I.360(t))	1.0000	0.9901	0.9901	1.0000	1.0891	1.1188	1.1287	1.1287	1.1386	1.1743	1.1834

1995 Total Factor Productivity Review Plan  
Capital Stock Beginning Value

Item	Source	1987
<u>GROSS BOOK VALUES</u>		
100 Gen Support Equipment	OTH1:I,100 to I,120 + I,140 to I,160	13,364,727,000
110 Communication Equipment	OTH1:I,170 to I,200	93,113,629,000
120 Structures	OTH1:I,130+I,210	97,698,628,000
<u>STARTING CAPITAL STOCK VALUES</u>		
200 Gen Support Equipment	I,100*MISC1,I,500	7,830,594,020
210 Communication Equipment	I,110*MISC1,I,510	62,139,566,540
220 Structures	I,120*MISC1,I,520	118,289,200,043
230 Total		188,259,360,603
<u>STARTING CAPITAL STOCK QUANTITIES</u>		
300 Gen Support Equipment	I,200/ASTPRICE1,I,310	7,799,769,698
310 Communication Equipment	I,210/ASTPRICE1,I,340	61,891,008,274
320 Structures	I,220/ASTPRICE1,I,370	119,472,092,043

1995 Total Factor Productivity Review Plan  
Development of Capital Index, Part 1: Capital Stock Calculations

Item	Source	1988	1989	1990	1991	1992	1993	1994	1995
<u>GROSS ADDITIONS</u>									
100 Gen Support Equipment	INV1, Sum of I.100 thru I.160 - I.130	2,169,178,000	2,126,920,000	2,156,776,000	2,058,327,000	2,107,587,999	2,006,830,000	2,135,433,000	2,255,668,000
110 Communication Equipment	INV1, Sum of I.170 thru I.200	9,342,274,000	8,276,835,000	8,796,264,000	8,804,154,000	9,255,855,000	9,535,950,000	9,694,912,000	9,772,592,845
120 Structures	INV1, Sum of I.130 + I.210	5,952,912,000	6,040,242,000	7,081,318,000	6,887,736,000	6,949,135,000	6,727,274,000	6,329,174,000	6,662,361,000
130 Total	Sum of 100 thru 120	17,464,364,000	16,443,997,000	18,034,358,000	17,750,217,000	18,312,577,999	18,270,054,000	18,159,519,000	18,690,621,845
<u>ASSET PRICE INDEXES</u>									
200 Gen Support Equipment	ASTPRC1, I.310	1.0000	0.9828	0.9431	0.8911	0.8398	0.7844	0.7538	0.7040
210 Communication Equipment	ASTPRC1, I.340	1.0000	1.0131	1.0251	1.0412	1.0552	1.0723	1.0843	1.0978
220 Structures	ASTPRC1, I.370	1.0000	1.0891	1.1188	1.1287	1.1287	1.1386	1.1743	1.1834
<u>CONSTANT DOLLAR INVESTMENT</u>									
300 Gen Support Equipment	I.100/I.200	2,169,178,000	2,164,218,141	2,286,935,384	2,309,897,399	2,509,614,855	2,558,406,854	2,832,806,296	3,204,183,113
310 Communication Equipment	I.110/I.210	9,342,274,000	8,170,195,897	8,580,880,454	8,456,063,051	8,771,485,804	8,893,076,966	8,940,863,289	8,901,664,844
320 Structures	I.120/I.220	5,952,912,000	5,546,040,382	6,329,319,628	6,102,292,421	6,156,689,781	5,908,301,513	5,389,937,386	5,629,960,040
<u>CAPITAL STOCK QUANTITY</u>									
400 Gen Support Equipment	I.400(t-1)*(1-MISC1,I.600)+I.300	8,763,103,303	9,572,545,674	10,379,565,496	11,084,782,070	11,880,689,616	12,602,341,856	13,486,826,101	14,605,945,899
410 Communication Equipment	I.410(t-1)*(1-MISC1,I.610)+I.310	64,425,271,364	65,508,687,411	66,883,612,250	67,982,477,954	69,275,891,183	70,548,620,119	71,729,135,195	72,740,595,167
420 Structures	I.420(t-1)*(1-MISC1,I.620)+I.320	122,736,881,972	125,521,342,510	129,026,431,932	132,225,629,634	135,407,242,748	138,268,881,299	140,547,768,856	143,015,404,097
<u>CAPITAL STOCK VALUE</u>									
500 Gen Support Equipment	I.200*I.400	8,763,103,303	9,407,572,395	9,788,819,533	9,877,540,981	9,977,466,785	9,885,354,109	10,166,672,378	10,282,235,318
510 Communication Equipment	I.210*I.410	64,425,271,364	66,363,720,480	68,562,417,779	70,780,953,452	73,101,367,102	75,648,520,369	77,778,580,332	79,857,446,033
520 Structures	I.220*I.420	122,736,881,972	136,706,412,634	144,356,305,032	149,244,770,082	152,835,897,755	157,434,864,846	165,039,261,251	169,241,032,589
530 Total	Sum of 500 thru 520	195,925,256,639	212,477,705,509	222,707,542,344	229,903,264,515	235,914,731,641	242,968,739,324	252,984,513,961	259,380,713,940
<u>LAGGED CAPITAL STOCK VALUE</u>									
600 Gen Support Equipment	I.200(t)*I.400(t-1)	7,799,769,698	8,612,079,957	9,027,730,699	9,249,129,384	9,309,059,363	9,319,285,674	9,499,928,292	9,494,401,843
610 Communication Equipment	I.210(t)*I.410(t-1)	61,891,008,274	65,266,163,460	67,152,981,774	69,636,853,317	71,736,530,451	74,283,786,931	76,498,503,744	78,747,026,054
620 Structures	I.220(t)*I.420(t-1)	119,472,092,043	133,673,831,851	140,434,769,342	145,633,794,457	149,244,770,082	154,176,563,525	162,363,260,615	166,320,891,651
630 Total	Sum of 600 thru 620	189,162,870,016	207,552,075,268	216,615,481,815	224,519,777,158	230,290,359,896	237,779,636,131	248,361,692,650	254,562,319,548



1995 Total Factor Productivity Review Plan  
Development of Capital Index, Part 2: Capital Cost Development

Item	Source	1988	1989	1990	1991	1992	1993	1994	1995
<u>VALUE OF REPLACEMENT</u>									
700 Gen Support Equipment	MISC1,I.600*CAP1,I.600	1,205,844,395	1,331,427,561	1,395,687,166	1,429,915,403	1,439,180,578	1,440,761,565	1,468,688,914	1,467,834,525
710 Communication Equipment	MISC1,I.610*CAP1,I.610	6,808,010,910	7,179,277,981	7,386,827,995	7,660,053,865	7,891,018,350	8,171,216,562	8,414,835,412	8,662,172,866
720 Structures	MISC1,I.620*CAP1,I.620	2,688,122,071	3,007,661,217	3,159,782,310	3,276,760,375	3,358,007,327	3,468,972,679	3,653,173,364	3,742,220,062
730 Total	Sum of 700 thru 720	10,701,977,377	11,518,366,759	11,942,297,471	12,366,729,643	12,688,206,254	13,080,950,807	13,536,697,690	13,872,227,453
<u>THREE YEAR MOVING AVERAGE FOR CAPITAL GAINS</u>									
800 Gen Support Equipment	ASTPRC1,[I.310(t)-I.310(t-3)]/3	-0.041579	-0.025810	-0.020289	-0.036303	-0.047654	-0.052893	-0.045756	-0.045276
810 Communication Equipment	ASTPRC1,[I.340(t)-I.340(t-3)]/3	0.013722	0.011379	0.007028	0.013722	0.014056	0.015730	0.014391	0.014206
820 Structures	ASTPRC1,[I.370(t)-I.370(t-3)]/3	0.000000	0.033003	0.042904	0.042904	0.013201	0.006601	0.015182	0.018221
<u>CAPITAL GAINS</u>									
900 Gen Support Equipment	I.400(t-1)*I.800(t)	(324,307,275)	(226,174,552)	(194,215,075)	(376,812,037)	(528,229,181)	(628,407,504)	(576,631,795)	(610,635,655)
910 Communication Equipment	I.410(t-1)*I.810(t)	849,240,743	733,085,417	460,402,422	917,747,022	955,576,999	1,089,681,019	1,015,257,920	1,018,981,546
920 Structures	I.420(t-1)*I.820(t)	0	4,050,722,177	5,385,404,134	5,535,787,509	1,745,552,866	893,777,180	2,099,131,531	2,560,938,637
930 Total	Sum of 900 thru 920	524,933,467	4,557,633,042	5,651,591,481	6,076,722,493	2,172,900,685	1,355,050,695	2,537,757,656	2,969,284,528
<u>TAXES</u>									
1000 Direct Income Taxes	EXP1,[I.210+I.220]	5,431,005,000	4,657,654,000	5,223,299,000	5,713,093,000	5,861,350,000	6,607,305,000	6,733,387,000	6,449,901,000
1010 Property & Capital Stock Taxes	EXP1,[I.230+I.250]	2,470,756,646	2,629,638,463	2,716,114,888	2,721,057,899	2,654,035,000	2,672,854,000	2,659,890,000	2,590,866,000
1020 Net Investment Tax Credits	EXP1,I.200	901,851,326	837,210,000	753,845,000	692,001,000	628,967,000	575,949,000	505,138,000	396,647,000
1100 Investment Tax Credit Rate	I.1020/I.130	0.0516	0.0509	0.0418	0.0390	0.0343	0.0315	0.0278	0.0212
1110 Property/Capital Stock Taxation Rate	I.1010(t)/I.530(t-1)	0.0131	0.0134	0.0128	0.0122	0.0115	0.0113	0.0109	0.0102
1120 Cost of Capital	MISC1,I.490	0.1235	0.1465	0.1381	0.1222	0.1313	0.1406	0.1390	0.1403
1130 Three Year Moving Average	MISC1,(I.490(t-2)+I.490(t-1)+I.490(t))/3	0.1326	0.1360	0.1360	0.1356	0.1305	0.1314	0.1370	0.1400
<u>PRESENT VALUE OF DEPRECIATION</u>									
1140 GSE Decl.Balance Rate/Asset Life	MISC1,(I.700/I.710) (for all Years)	0.2857	0.2857	0.2857	0.2857	0.2857	0.2857	0.2857	0.2857
1150 CommEqpt Decl Bal.Rate/Asset Life	MISC1,(I.720/I.730) (for all Years)	0.2857	0.2857	0.2857	0.2857	0.2857	0.2857	0.2857	0.2857
1160 Gen Support Equipment	(I.1140)*(1/(I.1130+(I.1140))) (1-((1-(I.1140))/(1+I.1130))^3)+ ((1-(I.1140))/(1+I.1130))^3*(1/(I.1130*4))*(1-(1/(1+I.1130))^4)	0.6972	0.6917	0.6916	0.6923	0.7006	0.6992	0.6901	0.6852
1170 Central Office	(I.1150)*(1/(I.1130+(I.1150))) (1-((1-(I.1150))/(1+I.1130))^3)+ ((1-(I.1150))/(1+I.1130))^3*(1/(I.1130*4))*(1-(1/(1+I.1130))^4)	0.6972	0.6917	0.6916	0.6923	0.7006	0.6992	0.6901	0.6852
1180 Cable & Wire	(1-(1/(1+I.1130)))*MISC1,I.740/ (I.1130*MISC1,I.740)	0.2347	0.2292	0.2292	0.2299	0.2381	0.2367	0.2277	0.2231
1190 Capital Cost	I.1130*CAPSTK1,I.230+I.1000+ I.1010+I.730-I.930	43,041,036,285	40,893,132,333	43,129,828,736	44,919,636,862	49,042,001,677	51,999,676,231	53,677,635,141	55,360,868,293